

Daily Lesson Plan (DLP)

Topic: Planting Space		Day :1
Grade: 4-5	Lesson Name: Topic: What type of soil is best for each crop you want to grow?	Time :(60 Mins.)

Topic	What type of soil is best for each crop you want to grow?		
Weekly key words	Clay, chalky, rehabilitation, sandy soil , etc.		
Seating plan	<input type="checkbox"/> Individual	<input type="checkbox"/> Pairs	Group of 4
Skill development	<input checked="" type="checkbox"/> Reading <input checked="" type="checkbox"/> Writing <input checked="" type="checkbox"/> Discussion <input type="checkbox"/> Presentation <input type="checkbox"/> Reflection <input type="checkbox"/> Illustration <input type="checkbox"/> Collaboration <input type="checkbox"/> Observation <input type="checkbox"/> Research <input type="checkbox"/> Other (Specify)		

Objectives: ➤ The students will be able to:	➤ Know different types of soils ➤ Learn what type of soil are good for a particular ground ➤
Teaching Resources:	Multimedia/projector, laptop, YouTube, writing board, notebook, piece of paper, pen/pencil, worksheet
Teaching Learning Strategies	
<p>Introduction: 5 mins.</p> <p>Start the lesson by asking the students to differentiate between soil and sand and share with the classroom. Take their responses and give feedback.</p> <p>Methodology: (20 mins.) Show the following video to the students using a projector, or multimedia. https://youtu.be/1uMj-k2aKd8</p> <p>Let the students discuss the content shown in the video.</p> <p>The teacher will discuss the types of soils, and the crops that grow better in these types of soils in detail.</p> <p>When it comes to crop production, taking the type of soil is essential. There are six main types of soil distinguished in the field of agriculture. Each type has some specific physical and chemical properties. While some types of soils are more productive and accommodating, utilizing amendments suitable for each type can still benefit growers.</p> <p>The condition of a field constantly changes due to various causes and must be regularly examined. Satellite technologies can be advantageous for pinpointing areas requiring immediate rehabilitation and tracking changes over time.</p> <p>Different Types Of Soil By Texture</p> <p>The ground consists of all the chemical elements that occur naturally in their solid, liquid, and gaseous states. Additionally, there are countless combinations of qualities that determine the physical and chemical conditions of the ground. No wonder scientists have designed diverse approaches for grouping soils by various features and applications. The textural classification, which divides soil into three primary groups based on the size of its particles, is one of the most often used systems. By size, constituents create three main soil types: small, which stands for clay; medium — for silt; and large — for sand.</p> <p>How does the erodity of soil types vary?</p> <p><i>The smaller the particles in the ground are, the more erosive the soil is. Thus, sandy ground (except for the fine sand) has a low erosive potential, while clayey and loamy — moderate, and silty — highest.</i></p> <p>Most grounds are not pure but are compounds of clay, sand, and silt. The texture, in this case, is defined by the relative proportions of each component. For instance, clay with a high silt content is called silty clay. The U.S. Department of Agriculture (USDA) has created textural categorization and textural triangle — types of soil chart for a more accurate texture measurement. Knowing the texture is essential as it indicates permeability, ease of tilling, plant growth potential, and more.</p>	

How many soil types are there?

There are six most common types of soil for agriculture: sand, clay, silt, chalk, peat, and loam.

Sandy Soil

The main advantage of the sandy type is that it is **suitable for early planting** because it is the first to warm up after winter. It is not too prone to erosion due to the large size of the particles. Sandy ground has a loose structure which makes it effortless to till. For the same reason, water quickly seeps into the lower layers of the ground, washing away nutrients with it. Additionally, the sandy type is often acidic, meaning it has a low pH level. Plants growing in sandy soils may thus be deficient in the nutrients and moisture necessary for their growth.

Do different types of soil affect plant growth?

Every group has distinct features suitable for some plants, helping them flourish, while making others perform poorly. You can choose the most suitable plants, considerably cutting effort while ramping up crop productivity.

Types of crops grown in the sandy ground:

- commercially cultivated plants that do well in sand include *collard greens, tomatoes, melons, squash, strawberries, sugarbeet, lettuce, and peppers*;
- plants that do well in sand with good irrigation: *maize, millet, and barley*;
- root vegetables: *potatoes, parsnips, and carrots*;
- shrubs and bulbs: *tulips, tree mallow, sun roses, and hibiscus*;
- herbs native to Mediterranean climates: *oregano, rosemary, and lavender*.

Types of crops difficult to grow in the sandy ground:

- brassicas like *broccoli and cabbage*;
- *peas and beans*.

Clay Soil

Clay's heavy and compact structure holds moisture well and is **ideal for moisture-loving plants**. Many crops will thrive in this type of soil due to the high nutrient content. Meanwhile, clay is frequently alkaline which stops plants from getting all the nutrients they require to flourish and produce a high yield.

Clay warms up slowly making it unsuitable for sowing plants in early spring. A significant disadvantage of this soil type is that it is rather challenging to work with: it often becomes sticky and waterlogged in winter and turns into solid blocks when it dries up in summer.

Types of crops grown in clay soil:

- vegetables: *broccoli, cauliflower, kale, peas, potatoes, cabbage, and Brussels sprouts*;
- leafy crops;
- fruit trees;
- perennials;
- ornamental plants;
- shrubs, including **aster, Helen's flower, and flowering quince**.

Types of crops difficult to grow in clay soil:

- root vegetables like *parsnips and carrots*;
- soft berries;
- desert and other plants that need fast draining.

Silty Soil

Silty ground particles have physical properties somewhere between those of sand and clay. Because of its fine texture, silt holds more water than sand. Silty types of soil are **fertile and contain a sufficient number of nutrients**. Most plants will thrive when the drainage system is channelized correctly for silt.

When there is enough moisture, this type of ground is soft and smooth, so that it is easy to cultivate. The disadvantage of silt is that it compacts easily making it difficult to till when it dries out.

Types of crops grown in silty soil:

- most vegetables;
- climbing plants;
- perennials;
- grasses;
- shrubs;
- trees, including *willow, birch, and dogwood*.

Types of crops difficult to grow in silty soil:

- root vegetables, including *parsnips and carrots*;
- desert and other plants that need fast draining.

Chalky Soil

The chalky ground is usually light and easy to work with in any season. At the same time, it contains stony inclusions. The good news is that chalky types of soil drain well, so you won't have to worry about it. However, rapid drainage, especially in hot weather, can cause the ground to dry out.

The problem with the chalky field is that it is too alkaline and deficient in certain minerals such as iron and manganese. Plants grown in the chalky ground are often stunted and have yellowish leaves. Thus, you must **use the proper kind of fertilizer to balance the pH to grow healthy crops**.

Types of crops grown in the chalky ground:

- vegetables: *spinach, beets, cabbage, and sweet corn*;
- flowers like *lilac, weigela, madonna lilies, mock oranges, Californian poppies, and wallflowers*;
- climbing plants, including *akebia, clematis, grape vines, ivy, jasmine, lonicera, and Virginia creeper*;
- trees and bushes.

Types of crops difficult to grow in the chalky ground:

- berries such as *blueberries and raspberries*;
- tomatoes.

Peat Soil

The peat structure is spongy and resistant to compaction, so it heats up quickly and retains water well. It has good aeration and allows the roots of the plants to breathe. The absence of pathogens distinguishes peat soil types.

Because it contains few harmful bacteria, the peaty ground is **an excellent choice for seed starting**. Its acidic condition limits plant nutrient availability, so you'll need to supplement crop production with fertilizer.

The major drawback of peaty ground is that it is a non-renewable resource. A decrease in peaty ground quantity can contribute to climate change by releasing greenhouse gases into the atmosphere.

Types of crops grown in the peaty ground:

- brassicas;
- legumes;
- salad greens;
- root crops;
- blueberries and other acid-loving berries;
- shrubs such as *witch hazel, rhododendrons, lantern trees, and heather*.

Types of crops difficult to grow in the peaty ground:

- peppers;
- tomatoes.

Loamy Soil

Loam comprises three different materials: silt, clay, and sand. The variety in particle sizes creates openings in the ground that allow air, water, and roots to pass through freely. Loam doesn't dry too fast; it is soft and almost effortless to till.

Loam type of soil **contains all of the nutrients required for active plant growth**. It also has high calcium and pH levels, as well as hummus. The minerals soluble in water easily nourish plants' roots, resulting in high yields.

Types of crops grown in loamy soil:

- most vegetables;

- root crops;
- wheat;
- cotton;
- sugar cane;
- most fruits;
- berries;
- climbing plants;
- flowers, including roses, irises, gladiolus, and lilies.

Types of crops difficult to grow in loamy soil:

- tomatoes (seedling stage onward);
- green beans;
- brassicas, including late-growing cabbage;
- cacti and other desert plants.

Soil Types Identification Principles And Techniques

There are two primary approaches to identifying the soil type: do-it-yourself tests and professional laboratory examinations. Both options have distinct limitations and application scopes, which we will go through in more detail.

1. Do-It-Yourself Tests

Self-testing is an easy way to get a quick grasp on your major soil types. The good thing is that it is usually either free or very inexpensive. Nevertheless, you can't rely on absolute precision here.

The type of soil is typically determined by touch, using the following steps:

1. Collect multiple samples from different sites in the field and mix them.
2. Take out any gravel and lumps from the sample and use the remaining material for the most accurate DIY testing possible.
3. Knead and roll a small piece of wet ground in your hand.
4. Determine different types of soil based on the following characteristics: stickiness, oiliness, and easy spreading, which indicate high clay content; silky texture, pointing to silt; grit, prickly, and difficult spreading, the tell-tale signs of sand.

2. Professional Laboratory Examinations

A laboratory study typically lasts several weeks and includes a broad range of soil quality indicators such as pH, organic matter, and nutrient cycling. Professional tests provide a high level of indicator reliability. For conducting lab tests, there are two options:

- Laboratories perform the entire research process, but such tests are pretty expensive.

- You take samples yourself and deliver them to the laboratory for further testing. In this you are responsible for deciding where and how many subsamples to take.

The Best Soil Types For Farming

Any farmer will tell you that the best type of soil is the one that yields a plentiful harvest with the least amount of tillage and fertilizer applied. But do the best types of soil exist? Both scientists and growers agree that loam is the easiest to work with yet the most fertile. Because of its precisely balanced composition of 40% silt, 40% sand, and 20% clay, loamy soil maximizes positive effects while utilizing each component's most outstanding qualities.

However, there is no need to feel down about any type of soil. Knowing the soil types you are working with allows you to make the best possible amendments and choose the plants that produce the most fruit. Whether it is loam, sand, or any other type, it is still required to cultivate and keep an eye out for any changes.

Activity: (30 mins.) (Group Work)

The teacher will select and assign different areas in the school garden area. The students in groups will observe the characteristics of soil in that assigned area and will identify the type of soil. The teacher will allow parents or an adult to guide them. The students will note down their findings in their journals.

Wrap up (5mins.): Wind up the lesson by asking the students randomly to share their findings.

Home Assessment:

The students will do the worksheet as homework.

Worksheet

Lesson Evaluation:

- Teacher was able to accomplish all aspects of the lesson well ☐
- Teacher was not able to do warm up activity ☐,
- develop lesson plan well ☐,
- do the learning activity ☐,
- do wrap up ☐,
- accomplish lesson objective ☐,
- manage time well ☐,

- manage class well ☐

Worksheet Day 1

Name: _____

Class: _____

Topic: Combining Planting

Subject: Science

- Write down any 3 types of soils and how they are good for crops?
- Paste the pictures also

